

## CLAIMS

1. A signal switching device comprising:
  - a selecting unit operable to select any one of a plurality of
  - 5 video signal inputs;
  - a memory for storing information;
  - a reading channel for reading the information out of an output destination device which is an output destination of a video signal;
  - a reading unit operable to read the information indicating a
  - 10 physical address of said signal switching device and a status of the output destination device through said reading channel;
  - a storing unit operable to store the information read by said reading unit into said memory;
  - a read-out unit operable to read out the information stored in
  - 15 said memory;
  - a plurality of read-out channels for outputting the information to a plurality of input source devices which is an input source of a plurality of video signal inputs; and
  - an outputting unit operable to output the information
  - 20 indicating the status of the output destination device through said read-out channel.
2. The signal switching device according to Claim 1,
  - wherein said outputting unit is operable to output the
  - 25 information indicating the status of the output destination device only from said read-out channel corresponding to the video signal input selected by said selecting unit.
3. The signal switching device according to Claim 2 further
- 30 comprising
  - an address setup unit operable to set up a physical address of each of the input source device based on the physical address of said

signal switching device,

wherein said outputting unit is operable to output the physical address, which is set up by said address setup unit, for the respective input source devices, and

5        said selecting unit is operable to select a video signal input corresponding to the physical address of input source device from any one of the plurality of input source devices.

4.       The signal switching device according to Claim 1 further  
10       comprising:

        a plurality of control signal transmission lines for transmitting a device control signal between the output destination device and the respective input source devices;

        a voltage detecting unit operable to detect a voltage status of  
15       said respective control signal transmission lines; and

        a power status control unit operable to change a status of power supply of said signal switching device depending on the detected result obtained by said voltage detecting unit.

20       5.       The signal switching device according to Claim 4,  
              wherein said power status control unit is operable to turn on power supply of said signal switching device, in the case where a pull-up of said control signal transmission line is detected by said voltage detecting unit.

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6.       The signal switching device according to Claim 4,  
              wherein said power status control unit is operable to turn off power supply of said signal switching device in the case where the voltage of said control signal transmission line is decreased to a  
30       ground voltage by said voltage detecting unit.

7.       The signal switching device according to Claim 1 further

comprising:

a plurality of control signal transmission lines for transmitting a device control signal between the output destination device and the respective input source devices; and

5 a power supply control unit operable to control power supply to all of or part of the output destination device and the respective input source devices depending on whether or not said respective control signal transmission lines are used.

10 8. The signal switching device according to Claim 7,  
wherein said power supply control unit is operable to supply power in the case where a message, which being the device control signal, is transmitted to said control signal transmission line.

15 9. The signal switching device according to Claim 7,  
wherein said power supply control unit is operable to stop power supply in the case where said control signal transmission line is not used.

20 10. A signal distribution device comprising:  
a distributing unit operable to output a video signal to a part of or all of a plurality of output destination devices which are output destinations of a plurality of video signals;

a memory for storing information;

25 a plurality of reading channels for reading the information out of the plurality of output destination devices;

a reading unit operable to read the information indicating a physical address of said signal distribution device and a status of the output destination device through said reading channel;

30 a storing unit operable to store the information read by said reading unit into said memory;

a read-out unit operable to read out the information stored in

said memory;

a read-out channel for outputting the information to an input source device which is an input source of video signal; and

an outputting unit operable to output the information  
5 indicating the status of output destination device through said read-out channel.

11. The signal distribution device according to claim 10 further comprising

10 a selecting unit operable to select any one of the plurality of output destination devices,

wherein said reading unit is operable to read the information indicating the status of output destination device only from said reading channel corresponding to the output destination device  
15 selected by said selecting unit.

12. The signal distribution device according to Claim 11 further comprising

an address setup unit operable to set up a physical address of  
20 the input source device,

wherein said reading unit is operable to read the physical address of said signal distribution device only from said reading channel corresponding to the output destination device selected by said selecting unit, and

25 said address setup unit is operable to set up a physical address of the input source device based on the physical address of said signal distribution device read by said reading unit.

13. The signal distribution device according to Claim 10 further comprising:  
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a plurality of control signal transmission lines for transmitting a device control signal between the respective output destination

device and the input source device;

a voltage detecting unit operable to detect a voltage status of said respective control signal transmission lines; and

5 a power status control unit operable to change a status of power supply of said signal distribution device depending on the detected result obtained by said voltage detecting unit.

14. The signal distribution device according to Claim 13

10 wherein said power status control unit is operable to turn on power supply of said signal distribution device in the case where a pull-up of said control signal transmission line is detected by said voltage detecting unit.

15. The signal distribution device according to Claim 13

15 wherein said power status control unit is operable to turn off power supply of said signal distribution device in the case where the voltage of said control signal transmission line is decreased to a ground voltage by said voltage detecting unit.

20 16. The signal distribution device according to Claim 10 further comprising:

a plurality of control signal transmission lines for transmitting a device control signal between the respective output destination device and the input source device; and

25 a power supply control unit operable to control power supply to all of or part of the respective output destination device and the input source device depending on whether or not said respective control signal transmission lines are used.

30 17. The signal distribution device according to Claim 16

wherein said power supply control unit is operable to supply power in the case where a message, which is the device control

signal, is transmitted to said control signal transmission line.

18. The signal distribution device according to Claim 16  
said power supply control unit is operable to stop power  
5 supply in the case where said control signal transmission line is not  
used.

19. The signal distribution device according to Claim 10  
wherein said outputting unit is operable to output only  
10 common information out of information indicating a status of the  
plurality of output destination devices.

20. A display device comprising:  
a selecting unit operable to select any one of a plurality of  
15 videos,  
a display unit operable to display the video selected by said  
selecting unit;  
a memory for storing information indicating a physical  
address of input source device which is an input source of video  
20 signal and a status of said display device;  
a read-out unit operable to read out the information stored in  
said memory;  
a read-out channel for outputting the information to the input  
source device; and  
25 an outputting unit operable to output the information  
indicating the status of said display device through said read-out  
channel.

21. A signal transmission system comprising:  
30 a video signal transmission device;  
a video signal processing device; and  
a video signal receiving device,

wherein said video signal processing device includes,  
a memory for storing information,  
a reading channel for reading the information from said video  
signal receiving device,

5 a reading unit operable to read the information indicating a  
physical address of said video signal processing device and a status  
of said video signal receiving device,

a storing unit operable to store the information read by said  
reading unit into said memory,

10 a read-out unit operable to read out the information stored in  
said memory,

a read-out channel for outputting the information to said  
video signal transmission device, and

an outputting unit operable to output the information  
15 indicating a status of said video signal receiving device through said  
read-out channel.

22. A signal switching method comprising:

a selecting step for selecting any one of a plurality of video  
20 signal inputs;

a reading step for reading information indicating an own  
physical address and a status of output destination device through a  
reading channel for reading the information out of the output  
destination device which is an output destination of a video signal;

25 a storing step for storing the information read in said reading  
step into a memory;

a read-out step for reading out the information stored in the  
memory; and

an outputting step for outputting the information indicating  
30 the status of the output destination device through a read-out  
channel for outputting the information to a part of or all of a plurality  
of input source devices which are input sources of a plurality of video

signal inputs.

23. A signal distributing method comprising:

5 a distributing step for outputting a video signal to a part of or all of a plurality of output destination devices which are output destinations of a plurality of video signals;

10 a reading step for reading information indicating an own physical address and a status of the output destination device through said reading channel for reading the information out of a part of or all of the plurality of output destination devices;

a storing step for storing the information read in said reading step into a memory;

a read-out step for reading out the information stored in the memory; and

15 an outputting step for outputting the information indicating the status of output destination device through a read-out channel for outputting the information to an input source device which is an input source of video signal.

20 24. A program for causing a computer to execute:

a selecting step for selecting any one of a plurality of video signal inputs;

25 a reading step for reading information indicating physical address of a main device and a status of output destination device through a reading channel for reading the information out of the output destination device which is an output destination of a video signal;

a storing step for storing the information read in said reading step into a memory;

30 a read-out step for reading out the information stored in the memory; and

an outputting step for outputting the information indicating



the status of output destination device through a read-out channel for outputting the information to a part of or all of a plurality of input source devices which are input sources of a plurality of video signal inputs.

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25. A program for causing a computer to execute:

a distributing step for outputting a video signal to a part of or all of a plurality of output destination devices which is an output destination of a plurality of video signals;

10 a reading step for reading information indicating an own physical address and a status of the output destination device through a reading channel for reading the information out of a part of or all of the plurality of output destination devices;

15 a storing step for storing the information read in said reading into a memory;

a read-out step for reading out the information stored in the memory; and

20 an outputting step for outputting the information indicating a status of the output destination device through a read-out channel for outputting the information to an input source device which is an input source of a video signal.